#### **ATTACHMENTS**

SITE PLAN

(Plate No. 1)

(In Back Pocket)

# SUBSURFACE EXPLORATION LEGEND

#### UNIFIED SOIL CLASSIFICATION CHART

Soil Description	Group Symbol	Typical Names
COARSE GRAINED: More than half of material is <u>larger</u> than No. 200 sieve size.		
<b>Gravels:</b> More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".		
CLEAN GRAVELS	GW	Well graded gravels, gravel sand mixtures, little or no fines.
	GP	Poorly graded gravels, gravel sand mixtures, little or no fines.
GRAVEL W/FINES	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
	GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
Sands: More than half of coarse fraction is smaller than No. 4 sieve size.		
CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
	SP	Poorly graded sands, gravelly sands, little or no fines.
SANDS W/FINES	SM	Silty sands, poorly graded sand and silt mixtures.
	SC	Clayey sands, poorly graded sand and clay mixtures.
<b>FINE GRAINED:</b> More than half of material is smaller than No. 200 sieve size.		
Silts & Clays: Liquid limit <u>less</u> than 50	ML	Inorganic silts and very fine sands, rock flour, sandy silt or clayey-silt-sand mixtures with slight plasticity.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	OL	Organic silty and organic silty clays of low plasticity.
Silts & Clays: Liquid limit greater than 50	МН	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
	СН	Inorganic clays of high plasticity, fat.
	ОН	Organic clays of medium to high plasticity.
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils.
	COARSE GRAINED: More than half of material is larger than No. 200 sieve size.  Gravels: More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".  CLEAN GRAVELS  GRAVEL W/FINES  Sands: More than half of coarse fraction is smaller than No. 4 sieve size.  CLEAN SANDS  SANDS W/FINES  FINE GRAINED: More than half of material is smaller than No. 200 sieve size.  Silts & Clays: Liquid limit less than 50  Silts & Clays: Liquid limit greater than 50	COARSE GRAINED: More than half of material is larger than No. 200 sieve size.  Gravels: More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".  CLEAN GRAVELS  GP  GRAVEL W/FINES  GM  GC  Sands: More than half of coarse fraction is smaller than No. 4 sieve size.  CLEAN SANDS  SP  SANDS W/FINES  SM  SC  FINE GRAINED: More than half of material is smaller than No. 200 sieve size.  Silts & Clays: Liquid limit less than 50  ML  Silts & Clays: Liquid limit greater than 50  MH  CH  OH

Plate No. 2

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<b>ДЕРТН (FEET)</b>	SAMPLE TYPE	SOIL	TRENCH NO. T-1	   <u>⊢</u> ш			(%	% Z	E
<u>E</u>	Щ	SOIL	ELEVATION ± 592 SOUTH	ZEN ZEN	TEN TEN	NSI F)	1 2 5 F		
P.	MP	SSIF	SAMPLING METHOD FORD 555C BACKHOE	APPARENT	PAF	BC	MOISTURE ONTENT (%	AC	H E
H	SA	CLA	DESCRIPTION	AĀ	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	<b>DEPTH (FEET)</b>
		2 2	COLLUVIUM - Dark Reddish-	Existing					<del> </del> _
-		P. TO	Brown, Very Sandy Silt with Isolated Pebble to	LXISTING	Grade				-
1-		±SM ≓	Cobble, Porous	Dwy					_1
-			O	Dry To	Soft				]
2-	С	₩ ML ±	Grades To	Damp	00.1			· /	-
	_	To E							-2
-			Dark Brown, Clayey, Sandy Silt			101.6			_
3-		ML	Same Promise of the Control of the C	Moist	Medium	101.0			-3
	-		ALLUVIUM - Dark Brown,		Stiff		4.6		-3
			Sandy Silt with Minor Decomposing Vegetation	Moist	Soft				-
4-	С		vegetation	MOISE	3011				4
-		ML							_
5-									<b></b> 5
_		GM F	DECIDINAL MARKET			44-4			<b></b> 5
		7	RESIDUUM – Mottled Orange and Gray,  Very Sandy Silt, with Angular Gravel	D		117.4		·	- '
6-			to Cobble of Meta-Volcanic Rock	Damp To	Very Stiff		9.2		-6
-		三		Moist	·				_
7-			•						
		D D E							-7
	1								-
8-		響				-			-8
-									_
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			BOTTOM OF TRENCH @ 9 FEET						-9
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	02-11	1	BUENA CREEK SUBDIVISION		07-10-02				1
<u> </u>								VWG	

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<b>ДЕРТН (FEET)</b>	SAMPLE TYPE	SOIL	TRENCH NO. T-2	<b>₽</b> ₩	APPARENT CONSISTENCY	DRY DENSITY (PCF)	(%)	RELATIVE COMPACTION %	(E)
H (F)	LE.	SOIL SIFIC	ELEVATION ± 605	TUF	REP	ENS (F)	I E F	F E	(FE
EPT	AMP	S	SAMPLING METHOD FORD 555C BACKHOE	APPARENT	PPA	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	MOISTURE CONTENT (%)	ELA	<b>DEPTH (FEET)</b>
۵	15	J	DESCRIPTION	< ≥	4 0	K	≥ 8	COM	DE
			COLLUVIUM - Brown, Very Sandy Silt to Very Silty,	Dry	Soft	<del> </del>			
-	į	ML To	Very Fine Grained Sand, Porous	-	To Loose				-
1-		- SM -							-1
_			COLLUVIUM – Dark Brown, Clayey, Sandy Silt	Moist	Madi				  -
2_		→ MH →	Jane Blown, Glaydy, Gallay Sint	То	Medium Stiff				-2
_	С	ML	Grades To	Very Moist					-
3-			Dark Reddish-Brown, Sandy Silt			113.5	11.4		_
	С		RESIDUUM – Gray, Very Sandy Silt, Well Cemented						-3
-			Real Doom - Gray, very Sandy Silt, Well Cemented	Damp	Medium Dense	115.3	5.4		_
4-		ML			To Dense				-4
-			TONALITE Dork Organish Brown File ( M. ()	77.10	Delige				_
5-			TONALITE – Dark Orangish-Brown, Fine to Medium Grained Decomposed Granitic Rock	Damp To	Very Dense				-5
_	,	SP		Moist	201100				_5
6-									
			BOTTOM OF TRENCH @ 6 FEET						-6
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1	3 NUM 02-1	1	BUENA CREEK SUBDIVISION		E LOGGED			GGED B	Y
L					07-10-02			VWG	

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ET)	/PE	NOI	TRENCH NO. T-3	<u></u>	_ ≿	<b>-</b>	9	%	
1 (FE	Щ Н	OIL FICA	ELEVATION ± 649	REN.	ZEN	NSIT F)	URE	IN IN IN IN IN IN IN IN IN IN IN IN IN I	
<b>DEPTH (FEET)</b>	SAMPLE TYPE	SOIL	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	<b>DEPTH (FEET)</b>
ا ۃ	8	CLA	DESCRIPTION	₹ ≥	₹ Ö	DR	ŠÖ	SOM	DEP
_		± SM 5	COLLUVIUM - Brown, Very Silty, Very Fine Grained Sand, Porous	Dry To	Loose				
1-		То	Salid, Porous	To Damp			· }		-
		ML 2							-1
2-									_
_							ļ		-2
3_	В		TONALITE – Gray, Fine Grained Decomposed					:	-
	<b>D</b> .	SP	Granitic Rock, Moderately Jointed, Thinly Foliated	Damp	Very Dense				-3
4-			• • • • • • • • • • • • • • • • • • • •		Delise				_
-			· •						<b>-4</b>
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			NEAR REFUSAL @ 5 FEET						<b>-5</b>
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	/PE	NOIT	TRENCH NO. T-4	<b></b>		>	) <sub>(6</sub>	%	
H (FE	Ē	SOIL	ELEVATION ± 727	ZEN-	LENG TENG	NSIT (F)	URE 17 (%	NOT NOT	H
DEPTH (FEET)	SAMPLE TYPE	SOIL	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	ELA1	ОЕРТН (FEET)
□		-	DESCRIPTION	- ₹≥	₽Ğ	R	ŽŌ	RELATIVE COMPACTION %	DEP
_		SMS To D	COLLUVIUM – Brown, Gravelly to Cobbly, Very Silty, Very Fine Grained Sand	Dry	Loose				-
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-		7	L UNDULATING CONTACT	<del></del>	$\downarrow$				-1
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3-		ĞM.	SANTIACO DE AK VOI CANIGO	Dry	Very Dense				
-			SANTIAGO PEAK VOLCANICS – Greenish-Gray, Meta-Volcanic Rock, Moderately Fractured and Jointed						<b>-3</b>
4_			Tractaled and Jonned						
-	С					155.2	0.2		<b>–4</b>
5-				1.		155.2	0.2		- -5
-			NEAD DETILO			-			<b>-</b> 5
6-			NEAR REFUSAL @ 5½ FEET					-	6
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			77-10-02 VWC					- 1	

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l E	PE	SOIL	TRENCH NO. T-5	L	_ >	<b> </b>	(6)	%	_
(FEI	я Т	ICA]	ELEVATION ± 739	ZEN J	ZENJ TENC	NSIT F)	URE VT (%	NOT NOT	FEE
<b>ДЕРТН (FEET)</b>	SAMPLE TYPE	SSIF	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	ELA1	<b>DEPTH (FEET)</b>
B	SA	CLA	DESCRIPTION	ΥZ	COA	DR.	ž ö	RELATIVE COMPACTION %	DEP
			COLLUVIUM - Brown, Very Silty, Very Fine Grained	Dry	Loose				
		SM =	Sand, with Localized Angular Gravel to Cobble		•				-
1-		⊕ GM ⊕							-1
_					·				-
2-			SANTIAGO PEAK VOLCANICS – Greenish-Gray,	_					-2
_			Meta-Volcanic Rock, Moderately Jointed	Dry	Very Dense				
3-		GM				·			-3
		XX							-
4-	<del></del>	er see es	NEAR REFUSAL @ 4 FEET						-4
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1	02 <b>-</b> 1		BUENA CREEK SUBDIVISION		'E LOGGED )7-10-02		LO	GGED B'	Y
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ОЕРТН (FEET)	SAMPLE TYPE	SOIL CLASSIFICATION	TRENCH NO. T-6  ELEVATION ± 742 SOUTH →  SAMPLING METHOD FORD 555C BACKHOE  DESCRIPTION	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	DEPTH (FEET)
1-	· ·		COLLUVIUM – Brown, Silty, Gravelly, Very Fine Grained Sand	Dry	Loose				 -1
-			L UNDULATING CONTACT						-
2-		GM	SANTIAGO PEAK VOLCANICS – Bluish-Gray, Meta-Volcanic Rock	Dry To Damp	Very Dense				-2 -
3-		1							-3 -
4-			Excavates as Silty, Sandy Angular Cobble						<b>-4</b>
5-			Moderately Jointed and						<u>-</u> 5
6-			Fractured						-
-	ļ						·		-6 -
7-									<b>-</b> 7
8-		, A							 8
_			NEAR REFUSAL @ 8 FEET						-
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12-									-12 -
	3 NUM	i	BUENA CREEK SUBDIVISION	DA	TE LOGGED	'	LO	GGED B	Y
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<b>DEPTH (FEET)</b>	SAMPLE TYPE	SOIL	TRENCH NO. T-7  ELEVATION ± 692  SAMPLING FORD 555C BACKHOE  DESCRIPTION	APPARENT MOISTURE	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
_		GM -	COLLUVIUM – Brown, Very Silty, Gravelly Sand	Dry	Loose				_
1- 2- 3- 4- 5-		GM	SANTIAGO PEAK VOLCANICS — Bluish-Gray, Meta-Volcanic Rock, Moderately Jointed and Fractured	Dry To Damp	Very Dense				-1 -2 - -3 - -4 - -5 -
6-		λ						•	-6 -
-	В								7 -
8-							e e		-8
9-		2. 7	NICAD DEFINAL O A TITU						<b>-9</b>
10-			NEAR REFUSAL @ 9 FEET					·	- -10
11-									- -11
12-									-12 -
1	NUM 02-1		BUENA CREEK SUBDIVISION		E LOGGED 07-10-02			GGED B'	Y

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ОЕРТН (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-8  ELEVATION ± 642  SAMPLING METHOD FORD 555C BACKHOE  DESCRIPTION	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
- 1- 2- - 3-	С		ALLUVIUM – Dark Brown, Very Sandy Silt with Randomly Oriented Angular Pebble to Cobble of Metamorphic Rock, Very Fractured Soil Structure in Upper 1½ Feet	Damp To Moist	Medium Stiff To Very Stiff	104.1	11.4		 -1 2  -3 
4 5 6	С		RESIDUUM – Dark Orangish-Brown, Sandy Siltstone, with Angular Pebble of Metamorphic Rock, Well Cemented	Damp To Moist	Hard To Very Hard	109.1	8.9		-4 - -5 - -6
7-			BOTTOM OF TRENCH @ 7 FEET						-7 -
8- - 9-									-8 -
10-								·	9  10
11-						·			- -11
12-									- -12
i	3 NUM 02-1	I	BUENA CREEK SUBDIVISION		TE LOGGED 07-10-02		LO	GGED B	Y

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ET)	/PE	SOIL	TRENCH NO. T-9	⊢ m	_≿	<b> </b>	9	%	٦
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DEPTH (FEET)	SAMPLE TYPE	S ASSI	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	рертн (FEET)
	S	占	DESCRIPTION	- 0 =	₹8	K	≥8	S S	DE
_			COLLUVIUM – Orangish-Brown, Very Silty, Fine Grained Sand, Very Porous	Dry	Loose				
1-		- <u>S</u> M -					ľ		_ _1
-			TONALITE – Gray, Fine to Medium Grained,						
2-			Slightly Decomposed Granitic Rock	Dry	Very Dense				-2
-		SP.							_
3-	·		REFUSAL @ 3 FEET						<b>–3</b>
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E	PE	SOIL	TRENCH NO. T-10		<b> </b>	<b> </b> >		%	1
<b>DEPTH (FEET)</b>	SAMPLE TYPE	CA]	ELEVATION ± 667	APPARENT MOISTURE	ENT	SIT (	JRE T (%	₽ NO	Ë
TH.	ΛΡLΙ	SO	SAMPLING METHOD FORD 555C BACKHOF	PAR	PAR	PCF	MOISTURE ONTENT (%	LAT	H.
DE	SAN	LAS		MO AP	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	<b>DEPTH (FEET)</b>
			DESCRIPTION COLUMN Proves City 51		0			ğ	
-			COLLUVIUM – Brown, Silty, Fine Grained Sand, Porous	Dry	Loose			٠	_
1-		SM.							_1
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3-	-	SM.	RESIDUUM - Orangish-Brown, Slightly Silty, Fine to	D	<u> </u>				<b>–3</b>
-		To	Medium Grained Sand	Damp	Dense To				_
4-	В	SP	Grades To		Very				-4
-			TONALITE - Gray, Fine to Medium Grained,		Dense	i			_
5-			Slightly Decomposed Granitic Rock NEAR REFUSAL @ 5 FEET						5
-			NEAN NEPUSAL @ 9 FEE!						_
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(EI	YPE	SOIL	TRENCH NO. T-11	<u></u>		  ≿	(%	% <b>7</b>	E
F)	LΠ		ELEVATION ± 635	ÆN GR	N N N N N N N N N N N N N N N N N N N	NSI (F	18 F		
<b>DEPTH (FEET)</b>	SAMPLE TYPE	SC	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
<u> </u>	Ś	강	DESCRIPTION	<b>4</b> =	<b>₹</b> 8	PA	≥ 8	SON	DE
			COLLUVIUM - Brown, Silty, Fine Grained Sand	Dry	Loose				
1-		SM -		İ					_
'-	С		ALLUVIUM – Dark Brown, Very Sandy Silt with	Moist	Medium	111.7	15.0		-1
-			Randomly Oriented Angular Pebble to Cobble of Metamorphic Rock	То	Stiff	111.7	13.0		_
2-		ML	to comple of Metamorphic Rock	Very Moist					-2
_		<u>∓</u> Το <del>-</del>							-2
	<u> </u>	GM :							-
3-	С						,		-3
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4-	Ì								<b>-4</b>
_			1						-
_					:				-
5-	-		RESIDUUM - Orangish-Brown, Slightly Silty, Fine to	Damp	Dense				-5
-		SM	Medium Grained Sand	Samp	Dense			•	_
6-					:				-6
_			Grades To						-0
7-		SP /							_
'-				Damp To	Very				<del></del> 7
-			TONALITE – Gray, Fine to Medium Grained, Slightly Decomposed Granitic Rock	Moist	Dense			'	
8-		* ( * ) * ( * )	BOTTOM OF TRENCH @ 8 FEET	· · · · · · · · · · · · · · · · · · ·					-8
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	PE	NO NO	TRENCH NO. T-12		<u> </u>	<b> </b>		%	
(FE	ETY	<u> </u> [8	ELEVATION ± 612	LENT	ENG	SIT (	JRE T (%	NO NO NO NO	EFT
DEPTH (FEET)	SAMPLE TYPE	SO	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	PAR	DEN PCF	MOISTURE ONTENT (%	LAT	H H
B	SAI	SOIL	DESCRIPTION	A P M	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	<b>DEPTH (FEET)</b>
	-		COLLUVIUM - Brown, Silty, Fine to Medium	Down-				Ö	
-		SM -	Grained Sand	Damp	Loose				_
1-									_1
-	С	SM To	RESIDUUM – Reddish-Brown, Very Silty, Fine to Medium Grained Sand	Moist		122.6	8.3		_
2-		ML			Dense				_2
-			Grades To		То				_
3-	<u> </u>				Very Dense				
_		SP	TONALITE – Orangish-Gray, Fine to Medium	Damp	Dense				<u>-</u> 3
4_			Grained, Slightly Decomposed Granitic Rock						
_		\$ 3.6							<b>–4</b>
5-			BOTTOM OF TRENCH @ 4½ FEET						_
_									<b>5</b>
6-									_
_									<b>-6</b>
7_									_
'-									<b>-7</b>
-									
8-									-8
				,					-
9-		1							-9
-					:			·	-
10-									-10
-									_
11-				·					-11
-									_
12-						•			-12
_									_
107	<u> </u>								
	3 NUM 0 <b>2-1</b> 1		<b>BUENA CREEK SUBDIVISION</b>		E LOGGED			GED BY	1
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		T		<del></del>	T	T	1		
DEPTH (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-13	늘	APPARENT	È	(%)	RELATIVE COMPACTION %	[ <u>]</u>
H (F)	E	SOIL SIFIC	ELEVATION ± 617	A PET	REP	ENS CF)	TUR	VIT	(FE
EPT	AMP	S	SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	PPA	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELA	ОЕРТН (FEET)
			DESCRIPTION		₹8	<u>p</u>	<b>2</b> 0	CO	B
1-		SM . To . GM	COLLUVIUM – Brown, Silty, Fine to Medium Grained Sand	Dry	Very Dense				_
		GM	RESIDUUM – Orangish-Gray, Gravelly, Silty, Fine Grained Sand	Damp	Dense				-1
2-				То	То				_
_		GM	Grades To	Moist	Very	114.8	7.6		2
3	С	To SP	SANTIAGO PEAK VOLCANICS – Dark Bluish-Gray, Very Fine Grained Meta-Volcanic Rock		Hard				<del>-</del>
3-		20.	NEAR REFUSAL @ 3 FEET						-3
-									_
4-				•					-4
· <b>-</b>									_
5-									-5
-							·		_
6-									-6
-									_
7-									<b>-7</b>
_									
8-	:								-8
_		·				•		:	-0
9_									
$\left                                     $									<b>-9</b>
10-									
10-									-10
-									-
11-									-11
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12-							•		-12
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JOI	3 NUM	IBER	DUENA OPERICALISTICA	DAT	TE LOGGED		1.00	GGED P	Y
	02-1	1	BUENA CREEK SUBDIVISION	07-11-02			LOGGED BY NSB		
						1			

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ОЕРТН (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-14  ELEVATION ± 633  SAMPLING METHOD FORD 555C BACKHOE  DESCRIPTION	APPARENT	APPARENT CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
1-		SS I	COLLUVIUM – Reddish-Brown, Very Silty, Fine to Medium Grained Sand, Porous	Dry To Damp	Loose To Medium Dense				_ 
2-		SM TO M	RESIDUUM – Reddish-Brown, Very Silty, Fine to Medium Grained Sand with Fractured Metamorphic Rock	Dry	Very Dense				- <b>2</b>
4-	С	SP	Grades To  SANTIAGO PEAK VOLCANICS – Dark Bluish-Gray,  Very Fine Grained Meta-Volcanic	Dry	Very Dense				-3 - -4
5-			Rock REFUSAL @ 4½ FEET					<u> </u>	_ _5
_									
6-									-6
7-									- -7
-									-
8-						:			-8
9-									- -9
_									-
10-									-10
11-									- -11
-	Ì								-
12-									-12
									-
	NUM		BUENA CREEK SUBDIVISION	DAT	E LOGGED		LO	GGED BY	<b>Y</b>
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	Γ	T			·	<del></del>			
ОЕРТН (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-15  ELEVATION ± 700  SAMPLING METHOD FORD 555C BACKHOE  DESCRIPTION	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	DEPTH (FEET)
1-		GM+	FILL – Reddish-Brown, Gravelly, Silty, Fine to Medium Grained Sand	Damp	Loose				_
2-		GM 5	COLLUVIUM – Reddish-Brown, Silty, Fine to Medium Grained Sand with Rock Fragments	Damp	Loose To Medium Dense				-1   -
3-	С	<b>S</b> P	SANTIAGO PEAK VOLCANICS – Greenish-Gray, Very Fine Grained Meta-Volcanic Rock, Slightly Fractured	Dry	Dense To Very Dense				2 -
			REFUSAL @ 3 FEET		201.00			·· <del>·</del>	-3
					·				-
4-		·							-4
-									_
5-									<b>-</b> 5
-									_
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[E]	PE		TRENCH NO. T-16		. ≿	<b> </b> _		%	
(FE	mi C	E A	ELEVATION ± 667	ZEN1	LENJ JENJ	NSIT (=	URE IT (%	NS NS NS NS NS NS NS NS NS NS NS NS NS N	
<b>DEPTH (FEET)</b>	SAMPLE TYPE	SOIL	SAMPLING METHOD FORD 555C BACKHOE	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PAC	<b>DEPTH (FEET)</b>
D D	SA	CLA	DESCRIPTION	- ₹≥	CON	DR.	¥ ō	RELATIVE COMPACTION %	DEP
		D C	COLEO FION - Reduisit-DIOWII, SIRV, FINE TO	Dry	Loose				
1-		0 0	Medium Grained Sand with Abundant Angular Pebble		To Medium Dense				-
_			RESIDUUM – Reddish-Gray, Silty, Fine to Medium Grained Sand with Fractured Rock	Dry					-1
2-		GM			Dense				-
_		76			То				-2
3_			Grades To		Very				-
	. :				Dense				<b>–</b> 3
4-	•	GM							
	С	To ;	SANTIAGO PEAK VOLCANICS – Dark Blue, Meta-Volcanic Rock	Dry To		167.7	2.8		-4
5-		3F		Damp					-
			BOTTOM OF TRENCH 5 FEET						-5
									-
6-	i								6
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IOP	NUM	DED.							
ł	о 12-11		BUENA CREEK SUBDIVISION		E LOGGED		LO	GGED B	Y
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				T	<del></del>	1	<del></del>		
E	PE	NO NO	TRENCH NO. T-17		. ≿	<b> </b>	_	%	
ОЕРТН (FEET)	SAMPLE TYPE	SOIL	ELEVATION ± 720	APPARENT MOISTURE	ENT	NSIT (=	URE IT (%	JVE JON	<b>DEPTH (FEET)</b>
HT	MPL	SCIE	SAMPLING METHOD FORD 555C BACKHOE	PAR	PAR	PCF	JISTI	ELAT PACT	H (
	SA	CLA	DESCRIPTION	ĀŠ	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	DEP
			COLLUVIUM - Reddish-Brown, Silty, Fine to	Dry	Loose			0	-
		-SM	Medium Grained Sand, Porous	To Damp	To Medium				_
1-					Dense				-1
									_
2-									2
_									-
3-		SM	RESIDUUM – Reddish-Gray, Very Silty, Fine Grained	D	D				-3
-	_	To GM	Sand with Fractured Rock  Grades To	Dry	Dense				_
4-	С		SANTIAGO PEAK VOLCANICS - Bluish-Gray Very	Dry	Very	108.9	1.7		4
-		3	Fine Grained Metamorphic Rock	D.y	Dense		ĺ		_
5		<u> </u>	BOTTOM OF TRENCH @ 5 FEET						-5
-									_
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7-									<b>7</b>
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-		ĺ			·				-
12-									-12
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JOB	NUMI		BUENA CREEK SUBDIVISION	DAT	E LOGGED		LOC	GED BY	-
	2-11		DUCKA CREEN BUBLINISION	• •				11	.

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ОЕРТН (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-18  ELEVATION ± 660  SAMPLING METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
-			DESCRIPTION					ၓ	
1-		GM (I)	COLLUVIUM – Brown, Silty, Gravelly, Fine to Medium Grained Sand	Dry	Loose	·			- -1
2-			SANTIAGO PEAK VOLCANICS – Bluish-Gray, Slightly Fractured Meta-Volcanic Rock	Dry	Dense				- - -2
_		*	NOON	То	То				
3_	С	GM		Damp	Very				_
"-	C	Y			Dense				-3
-									_
4-				:					4
_									·
5-									_
_			NEAR REFUSAL @ 5 FEET						-5
									-
6-		ĺ							-6
-									_
7-									<b>-7</b>
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									-8
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12-			•						-12
-									
JOB	NUM	BER		DAT	E LOGGED			2055 5	
1	02-11	- 1	BUENA CREEK SUBDIVISION		7-11 <b>-</b> 02		LO	GGED B	Y
1				<u> </u>	// - I I <b>-</b> UZ			NSB	

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E	PE	SOIL	TRENCH NO. T-19		<b>→</b>	<b>   </b>		%	
(FEE	Ţ	CAT	ELEVATION ± 685	ENT	ENG	SIT	18 € 7 E	₽ NO	EET
DEPTH (FEET)	SAMPLE TYPE	SO	SAMPLING	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	<b>DEPTH (FEET)</b>
DEF	SAN	LAS	METHOD FORD 555C BACKHOE	AP	APF	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Q Z N N	REI MP/	EPT
		O Research	DESCRIPTION		ပ			8	
-		GM	COLLUVIUM – Reddish-Brown, Silty, Fine to Medium Grained Sand and Fractured	Dry	Loose To				_
1-			Rock		Medium Dense				_1
-					Delise				_
2-			RESIDUUM – Reddish-Gray, Silty, Fine to Medium	D				***	-2
-		GM :	Grained Sand and Fractured Rock	Dry	Dense To				_
3-					Very				-3
-		* 1	Grades To		Dense				
4-	^								-4
5-	С		SANTIAGO PEAK VOLCANICS – Bluish-Gray, Meta-Volcanic Rock, Moderately	Dry	Dense	158.2	0.8		-
"_		1	Fractured		To Very				-5
6-					Dense				-
		1							-6
7-									
_	В	3			:				-7
8-		1)					ļ		-
-			Grades To						8
9-						·			- -9
-		1							_9
10-			·						-10
-									_
11-				·					-11
-					, .			.	_
12-						1			-12
-				Damp	_			.	_
13-	С	SP :	Gray, Meta-Volcanic Rock	To Moist	Dense	121.2	5.8		-13
-				MOISE					_
14-	}	List establish	BOTTOM OF TRENCH @ 14 FEET						-14
-			_						_
15-				ĺ	ļ	İ			-15
	NUM		RIJENA CREEK SURDIVISION DATE LOGGED				100	GED BY	,
C	02-11		BUENA CREEK SUBDIVISION		7-11-02			NSB	' .

	<u> </u>			T	T .	T	·	т	
DEPTH (FEET)	SAMPLE TYPE	SOIL	TRENCH NO. T-20 ELEVATION ± 705	<b>₽</b> ₩	APPARENT CONSISTENCY	È	(%)	RELATIVE COMPACTION %	l:
H	PLE	SOIL	ELEVATION ± 705	ARE	AREI	ENS CF)	J F	VIT	(FEI
GEP.	NA.	ASS	METHOD FORD 555C BACKHOE	APPARENT MOISTURE	APP/ NSI	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	REL/	<b>DEPTH (FEET)</b>
<u> </u>	0,		DESCRIPTION	\_	78	ă	= 8	200	DE
-		Z GM Z	Medium Grained Sand and	Dry	Loose To				<u> </u>
1-			Fractured Rock		Medium Dense				-
_					Delise				-1
2-					·				_
_	С	GM C	RESIDUUM – Cemented Breccia Consisting of Angular Metamorphic Pebbles and Cobbles	Damp	Very Dense	125.7	3.1		-2
3-			Supported in a Matrix of Orangish-Gray, Silty, Fine Grained Sand		Delise				-
_	,		NEAR REFUSAL @ 3 FEET						-3
4-								·	_
					ļ				<b>-4</b>
5-									
		-						-	-5
6-					j				-
									-6
7-									-
'-									-7
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8-									-8
-									-
9-									-9
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10-				1.					-10
-	Ì								-
11-									-11
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JOB	NUME	BER	DUENA OFFE	DATE LOGGED					
	)2-11	l l	BUENA CREEK SUBDIVISION		= LOGGED 7-11-02			IGED BY	
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DEPTH (FEET)	SAMPLE TYPE	SOIL CLASSIFICATION	TRENCH NO. T-21  ELEVATION ± 735  SAMPLING METHOD FORD 555C BACKHOE  DESCRIPTION	APPARENT	APPARENT	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION %	ОЕРТН (FEET)
1-			RESIDUUM – Cemented Breccia, Brown, Silty, Rocky Sand	Dry	Dense				- -1
2- 3- 4- 5- 6-	С	SP	SANTIAGO PEAK VOLCANICS – Bluish-Gray, Very Fine Grained Meta-Volcanic Rock	Dry	Very Dense	176.4	0.6		
7-			REFUSAL @ 7 FEET				·		-6 - -7
8-									8 
9-									-9 - -10
11-								,	- -11
12-									- -12 -
I	NUMI 02-11		BUENA CREEK SUBDIVISION		E LOGGED 17-11-02			GGED BY	(

### LABORATORY TEST RESULTS

### Maximum Density/Optimum Moisture

Sample Location	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
T-3 @ 3'	Brownish-Gray, Silty, Fine to Medium Grained Sand	130.8	8.8
T-10 @ 4'	Pale Brown, Slightly Silty, Fine to Medium Grained Sand	130.5	8.5
T-19 @ 7½'	Pale Orangish-Gray, Slightly Gravelly, Silty, Fine Grained Sand	119.2	12.0

#### **Direct Shear**

		Angle of
•	Apparent	Internal
Sample	Cohesion	Friction
Location	(psf)	(degrees)
*T-3 @ 3'	75	34

<sup>\*</sup>Sample remolded to 90 percent of maximum dry density and 3 percent over optimum moisture content.

#### **Expansion Index**

Sample Location	Initial Moisture Content (%)	Final Moisture Content (%)	Expansion Index	Expansion Potential
T-10 @ 4'	7.5	13.7	0	Very Low
T-11 @ 3'	10.5	21.2	36	Low

Plate No. 24

# LABORATORY TEST RESULTS - Cont.

### Mechanical Sieve Analysis

Sample	Percent Passing U.S. Standard Sieve					
Location	1"	#4	#10	#40	#100	#200
T-11 @ 1½'	100.0	99.9	99.7	91.9	80.8	73.3
T-12 @ 1½'	100.0	100.0	98.8	70.9	56.6	48.0
T-16 @ 4'	19.9	9.7	7.8	5.0	4.0	3.5

#### Resistance Value

Sample	R-Value
T-7 @ 7'	71
T-10 @ 4'	79

#### **In-Situ Moisture and Density**

Sample Location	Dry Density (pcf)	Moisture Content (%)	Sample Location	Dry Density (pcf)	Moisture Content (%)
T-1 @ 2'	101.6	4.6	T-12 @ 1½'	122.6	8.3
T-1 @ 4'	117.4	9.2	T-13 @ 2½'	114.8	7.6
T-2 @ 2½'	113.5	11.4	T-16 @ 4'	167.7	2.8
T-2 @ 3½'	115.3	5.4	T-17 @ 4'	108.9	1.7
T-4 @ 4½'	155.2	0.2	T-19 @ 4½'	158.2	0.8
T-8 @ 3'	104.1	11.4	T-19 @ 13'	121.2	5.8
T-8 @ 6'	109.1	8.9	T-20 @ 2'	125.7	3.1
T-11 @ 1½'	111.7	15.0	T-21 @ 3'	176.4	0.6

Plate No. 25

TABLE I

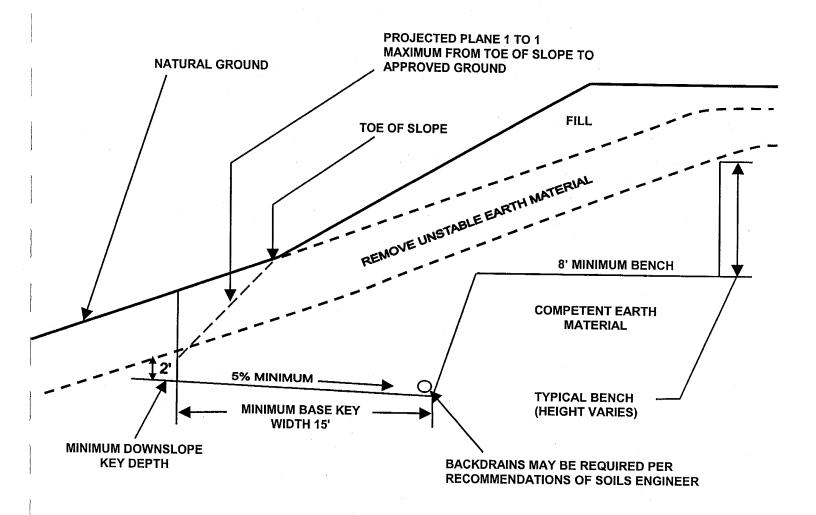
Trench Number	Depth of Soil Removal Below Existing Grade (ft.)	Trench Number	Depth of Soil Removal Below Existing Grade (ft.)
T-1	5½	T-12	1½
T-2	31/2	T-13	1½
T-3	3	T-14	1½
T-4	1½	T-15	2
T-5	2	T-16	1½
T-6	1½	T-17	3½
T-7	1	T-18	1½
T-8	5	T-19	2
T-9	1½	T-20	2
T-10	3	T-21	1
T-11	5	1 × 1	

NOTE: It should be recognized that variations in soil conditions might occur between exploratory excavations that will require additional removal. In areas where fill slope toe keys are proposed, add a minimum of 2 feet to removal depths presented above.

Exploratory trenches encountered in the removal process should be recompacted an additional 2 feet below the depths shown in the above table.

Plate No. 26

## **FILL SLOPE KEY**



BUENA CREEK SUBDIVISION				
JOB NO.: <b>02-11</b>	DATE: <b>08-21-02</b>			

Plate No. 27